

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Bailey et al.

Application Serial No. 10/820,972

Filing Date: April 8, 2004

Art Unit 1793

Examiner Abu Ali Shuangyi

Confirmation No. 9539

STARCH BINDER COMPOSITIONS,
METHODS OF MAKING THE SAME AND
PRODUCTS FORMED THEREFROM

Docket No. 030621/MIL.0005.US00

ARGUMENTS AND REMARKS FOR PRE-APPEAL BRIEF CONFERENCE

Pittsburgh, Pennsylvania 15222-2312
April 21, 2009

VIA ELECTRONIC MAIL

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Final Office Action mailed from the U.S. Patent and Trademark Office on January 21, 2009 ("Office Action"), in the above-identified patent application ("Subject Application"), Applicants request a Pre-Appeal Brief Conference in accordance with the guidelines in the "New Pre-Appeal Brief Conference Pilot Program" announcement, which appeared in the July 12, 2005 issue of the *Official Gazette*. In accordance with those guidelines, Arguments for the conference are presented herein. The issues addressed herein are ripe for appeal in accordance with 37 C.F.R. § 41.31(a)(1), the claims having been subject to at least two rejections.

Filed concurrently herewith are (1) a Notice of Appeal, (2) a Pre-Appeal Brief Request for Review (form PTO/SB/33), (3) the fee under 37 C.F.R. § 41.20(b)(1), and (4) an after-final Amendment in compliance with 37 C.F.R. § 1.116. Any fee deficiency or overpayment may be charged or credited, respectively, to Deposit Account No. 11-1110.

Claims 1-35 and 46-50 are pending in the Subject Application. Claims 1, 10, 18, 26 and 50 are independent claims, and claims 8-9, 16-17, 24-25 and 34-35 are withdrawn. Claims 1-7, 10-15, 18-23, 26-33 and 46-50 stand rejected under 35 U.S.C. § 103(a) as unpatentable over

U.S. Patent No. 5,766,366 to Ferguson et al. ("Ferguson") in view of U.S. Patent No. 4,407,955 to Muller et al. ("Muller"). For at least the reasons set forth herein, and the arguments already of record, Applicant respectfully submits that the Office failed to establish a *prima facie* case of obviousness, and therefore, the rejection under § 103(a) must be withdrawn.

Applicant submits that Ferguson and Muller, alone or in combination, fail to render the present claims obvious for at least the following reasons: (1) the compositions described in the cited references and the compositions recited in the present claims are different and distinct; (2) the reasoning provided by the Office in support of the § 103(a) rejection is improper; and (3) the cited references fail to teach or suggest all the features recited in the present claims.

I. The compositional distinctions between the cited references and the present claims

The independent claims each recite "An acid modified dry-milled flour composition." As stated in paragraph [0021] in the original specification, "the term 'dry-milled starch' refers to the flour product of a processed raw grain in the substantial absence of liquid, as compared to the pure starch of a wet milled cereal grain (emphasis added)."¹ This sentence in the specification describes the significant differences between starch compositions (as disclosed in Ferguson and Muller) and four compositions (as recited in the present claims).

A person having ordinary skill in the art would clearly recognize the fact that the flour composition recited in the present claims and the starches disclosed in Ferguson and Muller are distinctly different materials. Starch is a polysaccharide carbohydrate material having glucose monosaccharide units linked together by glycosidic bonds. Chemically, starch is a relatively pure material consisting essentially of polysaccharide molecules. In contrast, flour is a particulate mixture produced by grinding or milling raw grains or other vegetative materials. Accordingly, flour may comprise, *inter alia*, ash, starch, oils/fats, proteins, and fibers. Thus, starch and flour are two (2) distinctly different materials.

It is clearly evident that Ferguson discloses purified starch materials. For example, Ferguson describes amylopectin, amylose, and chemically derivatized versions thereof (c.2, II.16-60). Indeed, following a detailed review of the reference, Ferguson does not even mention, *inter alia*, "flour," "fat," or "protein" in any capacity whatsoever. A person having skill in the art would recognize that the dry-thinning process described in Ferguson is designed to modify pure starch polysaccharide, which has been isolated from other raw grain components (c.2, II.17-19, describing "thinning" as a process for reducing the molecular weight of starch via chemical

¹ The independent claims have been amended to delete the term "starch" and expressly recite "flour" in accordance with paragraph [0021]. See the Amendment filed concurrently herewith.

hydrolysis by gaseous acidification). Thus, Ferguson fails to teach or suggest a flour composition.

In direct contrast, the presently amended claims recite "dry-milled flour." Flour is a multi-component product of a processed raw grain comprising carbohydrate, protein, fats, fibers, and the like. See, for example, paragraph [0039] of the original specification, stating "The present invention may use relatively pure cereal flours having various levels of proteins as well as other components, such as ash, fiber, and fat." The materials disclosed in Ferguson are therefore compositionally distinct from the materials recited in the present claims. Thus, it is clear that Ferguson cannot possibly teach or suggest a dry-milled flour composition as recited in the present claims.

Muller does not remedy the deficiencies of Ferguson. Muller discloses converting the starch fraction derived from dry-milled cereal grain into a solution of monosaccharide sugar. Specifically, Muller discloses hydrolyzing a slurry of the starch fraction, separating and removing any residual protein and oil from the starch hydrolysate, and further hydrolyzing the resulting purified starch to provide a solution of glucose (c.4, II.5-64). Muller also discloses removing "the protein, oil and/or fiber from the partial hydrolysate prior to subjecting the latter to final hydrolysis" (c.5, II.4-7). Thus, Muller does not teach or suggest a flour composition (which may contain substantial amounts of protein, oil and/or fiber).

Ferguson teaches a thinned starch product produced using a hydrolysis process on an isolated starch feed, and Muller teaches a glucose product produced using a hydrolysis process on a feed consisting of the isolated starch fraction of dry-milled cereal grain. Both references are directed to isolated and purified carbohydrate compositions. In contrast, the composition recited in the present claims is a flour product of a processed raw grain. As such, the flour product recited in the present claims is not an isolated and purified carbohydrate composition like the compositions disclosed in Ferguson and Muller. Rather, the flour composition recited in the present claims contains additional components, such as, for example, fat and protein. Ferguson and Muller are directed away from flour compositions containing fat and protein. Therefore, the reference combination cannot teach or suggest an acid modified dry-milled flour composition as recited in the present claims.

II. The lack of proper reasoning to support obviousness in view of the cited references

In the Office Action, the Office asserts that "it would have been obvious to one of ordinary skill in the art at the time of the invention by applicant to use a dry mill starch in the Ferguson et al. process, motivated by the fact that Muller et al., also drawn to starch treatment,

disclose [sic] that starch made from dry mill process [sic] is cheap and economic." However, this assertion improperly ignores the technical disclosure in both Ferguson and Muller, and therefore, it is irrelevant to the question of whether the present claims are obvious.

Rejections on obviousness grounds cannot be sustained with mere conclusory statements or unsupported assertions; the examiner must clearly articulate logical reasoning with rational underpinnings based on factual evidence to support the legal conclusion of obviousness. See MPEP § 2141; KSR International Co. v. Teleflex Inc., 550 U.S. 398, 82 USPQ2d 1385 (2007); In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The teachings of prior art references are underlying factual questions in the obviousness inquiry. See Para-Ordnance Mfg., Inc. v. SDS Imp. Int'l, Inc., 73 F.3d 1085, 1088 (Fed. Cir. 1995).

The combined teachings of Ferguson and Muller clearly do not suggest a dry-milled flour composition. As between dry-milling and wet-milling, dry-milling may be the less expensive milling process, but the dry-milling process of Muller is still used to obtain starch. As a result, *arguendo*, a person having skill in the art may use a dry-milling process to mill a cereal grain and isolate the starch fraction from the other grain fractions as described in Muller, and then process the isolated starch fraction according to the thinning process disclosed in Ferguson. However, performing these combined steps still fails to produce an acid modified dry-milled flour composition because the references suggest isolating starch from the other raw grain components.

Ferguson and Muller both fail to recognize and appreciate the advantages of a flour composition comprising starch, fat and protein. Indeed, Ferguson and Muller both suggest the purposeful removal of fat and protein from starch. Thus, the fact that dry-milling may be cheaper than wet-milling is irrelevant because Ferguson and Muller are entirely directed to starch and starch processing. The references exclude flour materials comprising protein and fat. In fact, the non-carbohydrate components of flour would have no purpose whatsoever in the Ferguson process or the Muller process, and would be impurities in the context of those processes. Thus, there would be no logical reason to modify the cited references to employ a flour composition. Accordingly, the Office's reasoning in support of an obviousness conclusion is improper at least because the underlying factual teachings of the cited references do not suggest a flour composition.

III. The cited references fail to teach or suggest the properties recited in the claims

In the Office Action, the Office asserts that the starch composition disclosed in Ferguson is prepared in a substantially similar manner as the flour composition recited in the present

claims, and therefore, the starch composition in Ferguson would be expected to have the same material properties as the flour composition recited in the present claims. However, this assertion is incorrect.

As discussed above, Ferguson and Muller exclude fat and protein content from the disclosed starch materials. Therefore, because the starch materials disclosed in Ferguson and Muller are significantly different than the flour material recited in the present claims, the material disclosed in the references cannot possess the same properties as recited in the claims.

Contrary to the assertions made by the Office, a person having ordinary skill in the art would readily recognize that the significant compositional differences preclude similar fat and protein content as recited in the present claims. Indeed, Ferguson and Muller teach or suggest the removal of fat and protein from starch. In addition, isolated and purified starch materials would likely possess significantly different viscosity properties than those recited in the present claims in conjunction with a flour composition. A person having skill in the art would recognize that fat and protein content would have a significant effect on viscosity properties in this context. Thus, the cited references cannot teach or suggest the material properties recited in the present claims.

IV. Conclusion

Ferguson and Muller fail to teach or suggest a flour composition as recited in the present claims. Therefore, Applicants respectfully submit that a *prima facie case has not been established*. Accordingly, Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of the pending claims.

Respectfully submitted,

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Date



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